Module 3 - Calibration

ME3023 - Measurements in Mechanical Systems

Mechanical Engineering
Tennessee Technological University

Topic 2 - The Calibration Curve

Topic 2 - The Calibration Curve

- What is Calibration?
- Generalized Curve
- Static Sensitivity and Zero Offet
- Example: IR Distance Sensor

What is Calibration?

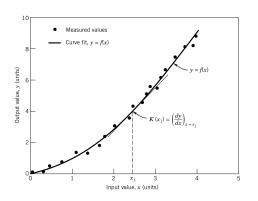
A calibration applies a known input value to a measurement system for the purpose of observing the system output value. It establishes the relationship between the input and output values. The known value used for the calibration is called the standard.

- A range of input values can be used to form a calibration curve.
- The calibration curve describes the input-output relationship of the measurement system.

Text: Theory and Design of Mechanical Measurements, 5th Edition,



Generalized Curve



- y: measured signal (output)
- x: known standard (input)

Question: How many values are needed for a calibration? Why?

Image: Theory and Design of Mechanical Measurements, 5th Edition,



Static Sensitivity and Zero Offet

You have learned about these by a a different name.

Static Sensitivity - The Slope of the Calibration Curve Zero Offset - Y-Intercept of Calibration Curve

Question: How many parameters or variables are needed to describe the curve?

Example: IR Distance Sensor



